75. **Numenius hudsonicus.** HUDSONIAN CURLEW.— Regular spring migrant.

76. **Squatarola squatarola.** BLACK-BELLIED PLOVER.— Regular spring and fall migrant but more common during the latter period.

77. **Oxyechus vociferus.** KILLDEER.— Resident and breeds but most common from March to December.

78. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.— Not an uncommon spring and fall migrant.

79. **Ægialitis nivosa.** SNOWY PLOVER.— A rare migrant. Recorded May 6, 1914 by D. E. Brown.

80. **Arenaria interpres morinella.** RUDDY TURNSTONE.— Rare migrant. Taken May 6, 1914 by D. E. Brown.

81. **Arenaria melanocephala.** BLACK TURNSTONE.— A rare migrant and possibly rare winter resident. Have an adult male taken February 22, 1914, collected by myself.

82. **Hæmatopus bachmani.** BLACK OYSTER-CATCHER.— Formerly not uncommon on the lower sound as a summer resident but of late years has become rare.

THE BIRDS' BATH.

BY HEYWARD SCUDDER.

A VERY little brook winds through a swamp. On the north and east, swamp maples, high and of thick foliage, make a dense shade; on the south and west, low alders, and open spaces filled with Joe-pye-weed and golden-rod let in the sun, and offer perches on which to dry and dress feathers. At intervals the brook widens into shallow pools.

In the course of the day — most abundantly between eleven and three — all the land birds, except the crows and owls, come to bathe in these pools.

A Prairie Warbler flies down on one side of a pool, hesitates at the brink like one fearing the chill of the water, then dashes in and begins splashing. On the other side a Black and White Warbler starts his bath. Then along comes a Robin, hops into the pool and through it till he comes to water deep enough to suit him, saying loudly, "Tut-tut! Tut-tut!" as if in scorn of the warblers, which

fly off instantly. After the Robin has gone, is an interval; then more small birds begin bathing, till the harsh cry of a Blue Jay near at hand, drives them into the bushes. There are no hawks here, except in migration. But a Blue Jay's presence seems to cause the same sort of fear among the small birds that a hawk's does in other places. Only Robins and Starlings hold their own without fear.

Is this bathing the explanation of the disappearance of birds in the middle of the day during the nesting season and all through the hot weather? Anyone who has been at a seashore resort knows how long it may take to get to the beach and into the water, take a bath, dress and then get home again, especially when one always has to be on the look-out to avoid certain objectionable persons, and when one is most particular about dressing and having one's clothes perfectly put on. In the case of the birds there is no way of telling how long it takes them to come and go, and to make sure that there is no enemy around. The numbers of certain kinds of birds can be explained in a satisfactory way only on the theory that most of them come from considerable distances. For the presence of ten or a dozen Prairie Warblers every hour would show a greater abundance of these birds near the swamp than is indicated by a study of the birds within a radius of a mile, though, of course, an accurate census of a bird population is really impossible. The other explanation for the abundance of birds is that the same bird may bathe repeatedly during the day. This is undoubtedly true in some cases, and possibly the rule during hot weather. But within a length of time as short as one or two hours, it requires a number of absences either from the search for food, or from the nest, which seems too great to be probable.

Certain pools are frequented for bathing, because of favorable conditions of water supply, depth of water, places for drying and preening feathers, and freedom from enemies. Within a half mile, one set of pools will abound with birds, while all the rest have only a few visitors or none at all. Yet it is often impossible to see any reason for the choice which has been made.

We all know the way in which a bird usually takes a bath, ruffling out its feathers, half opening its wings, then dipping its head in and out of the water, splashing with its wings and tail, and shaking its body vigorously.

But there are four variations of the way of bathing, seen chiefly in the nesting season. Why a bird should choose one way rather than another is a mystery for which I have never been able to furnish any explanation, even by the wildest use of imagination. The factors which have been considered are the temperature, the wind, the amount of sun or cloud or rain, the time of day, the sex of the bird when it can be known from plumage, the appearance of the bird (for a Chipping Sparrow certainly looks as if it were more careful of its feathers and general appearance than a Phoebe is), and the size and kind of bird. What is left? I think that the question can be solved only by one who is able to live with a bird, and keep up with it when it leaves its nest — which sounds very difficult.

Now as to these different ways of bathing. In the typical form there is only the length of time to consider. This has ranged in my observation from two seconds to one hundred seconds.

The next most common form is a series of short baths in the typical way, each lasting from two to fifty seconds, with an average of about five seconds. Then the bird flies to a perch on which it stays a short time, sometimes with just a little shake, sometimes with elaborate preening of feathers. Then it takes another bath and flies back to the perch for drying. In this way the bath is repeated sometimes six or seven times. In these cases the birds were entirely free from fear and from disturbance, an important consideration. For if a bird is driven out of the water by another bird, it will often fly up, perch, and come back again when the other is through. It may be driven away several times, yet always return until satisfied, as if some particular length or completeness of bathing was necessary.

Then comes a variation in which the bird takes a number of short dips, but does not shake much while in the water, though the wings are partly opened.

The fourth variation consists in a very vigorous shaking on a perch in the air before taking a bath, which may be any of the three preceding kinds. But I have never seen this shaking followed by the fifth kind of bath.

This fifth variation consists in keeping the wings tight shut or nearly tight shut, while in the water. The bird may splash about vigorously, or take a quiet bath.

Now I have seen these five kinds of baths taken by so many birds, that I am sure of their importance in bird life. Certain other variations occur occasionally. Thus, a Woodcock, after taking a typical bath, stood in the water while dressing its feathers. When all was done, and the feathers lying smooth, it stretched its wings out fully, then flapped them very quickly for about three seconds, raising them so high that they nearly met above its back. After that, it walked off quietly.

These observations were made chiefly in the southeastern part of the state of New York. The birds most often seen were Blue Jays, Flickers and Downy Woodpeckers, Wood-Thrushes, Robins, Starlings, Catbirds, Scarlet Tanagers, Orioles, Bluebirds, Cowbirds, Red-winged Blackbirds, Brown Thrashers, and various kinds of vireos, flycatchers, sparrows, and warblers.

Most of the observations were made between the middle of May and the middle of July, with the beginning of May and the end of October as limits for all but casual observation. This brings up two recollections of the indifference of birds to temperature; a Semipalmated Plover in the late fall, after sunset, bathing for more than half a minute in a half frozen pool on a beach; and a herring gull at noon of a day in which the thermometer never was above ten degrees, stepping off a cake of ice in a harbor and bathing for nearly half a minute.

But in hot weather, is this bathing the reason for the mid-day absence of birds from their usual places? Who can say?